



Sustainable Advantages

Málama Composites Inc. manufactures high performance rigid polyurethane foams using a proprietary formulation of plant-based polyols derived from soy. These panels exhibit superior structural characteristics and environmental features when compared to petroleum-based foams.

AinaCore® panels have high compressive and shear strength. The uniform cell structure and consistent density of our foams machine and surface with precision, and their moisture resistance and R value makes them an ideal core material for structural insulated panels, wind turbine blades, boat hulls, furniture, fixtures and architectural millwork, and many other industrial applications.

The features and benefits of AinaCore® are illustrated below:

Features	Benefits
High shear, bending and impact strength	Results in stronger, more resilient, durable products
High R value and heat resistance	Ideal for insulation and various industrial applications
Uniform cell structure and consistent density	Machines accurately / Produces high quality products
High water resistance and dimensional stability	Greater product longevity / Lower maintenance costs
Biodegradable, recyclable material	Superior life cycle performance / More resource efficient
Low cost raw materials, energy, and labor inputs	Price competitive with petroleum-based PU foams
Low emission, carbon neutral product	Providing safer work places and living environments

Structural Properties

The chart below lists the technical properties of AinaCore® S 5.0 (five pound soy-based foams).

AinaCore® S 5.0 Structural Properties	SI		Imperial		Test Procedure
	Value	Units	Value	Units	
Nominal Density	100	kg/m ³	5.0	lb/ft ³	ISO 845
Compressive Stress	2.0	MPa	67.6	psi	ASTM D 1621
Compressive Modulus	135	MPa	1900	psi	ASTM D 1621
Shear Strength	1.6	MPa	70	psi	ASTM C 273
Shear Modulus	35	MPa	1180	psi	ASTM C 273
Thermal Conductivity	0.033	W/mK	0.229	Btu.in/(ft ² .h.°F)	EN 12667
Water Vapor Permeability	< 4.0	m ² /(s · 10 ⁻⁸)	< 3.7	ft ² /(s · 10 ⁻⁹)	ISO 12572
Linear Expansion	40	10 ⁻⁶ /°C	22.2	10 ⁻⁶ /°F	
Continuous Temperature Range	-200 to 70° C	°C	-325 to 160°F	°F	

Environmental Attributes

There is no question that AinaCore® bio-based foams represent a fundamental leap forward when it comes to environmental sustainability. Our products utilize plant-based resins, lessening our dependence upon petrochemicals. Our products will not off-gas volatile organic compounds (VOCs) during manufacturing or after installation, contributing to safer work places and living environments.

According to a recent NIST study commissioned by the USDA, every pound of bio-based foam sequesters 2.6 pounds of CO2.

The material can be easily reused or recycled, improving life cycle performance. That is why our products are truly Green to the Core®.

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